

FIELD OBSERVATIONS OF *PERISSOMMA MCALPINEI* COLLESS (DIPTERA: PERISSOMMATIDAE)

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Abstract

Field observations of populations of *Perissomma mcalpinei* Colless, a rarely collected fly unusual for its winter activity, are described from high altitude, wet sclerophyll forest sites in New South Wales.

Introduction

Perissomma mcalpinei Colless, with its distinctively patterned wings (Figs 1-2), was described from a single female from Mt Wilson near Sydney, New South Wales and placed in the then newly proposed family Perissommatidae, along with *P. fusca* Colless from Mt Majura, ACT (Colless 1962). Colless (1969) later described another three species of Perissommatidae and presented further observations on *P. mcalpinei*, including range extension to Victoria, adult flying times, description of male genitalia and a description of the presumed larva. Colless (1969) also noted that, like *P. fusca*, *P. mcalpinei* had always been collected in midwinter and suggested that the species was native to rainforests and wet sclerophyll forests in cooler climates or at higher altitudes. The occurrence of aerial swarming by *P. mcalpinei* in dry sclerophyll forest on well drained rocky ground at Mount York in the Blue Mountains, New South Wales in July 1986 was described by McAlpine (1987).

With a need for fresh specimens of Perissommatidae to include in a molecular study of the Order Diptera for the ATOL FLYTREE project (FLYTREE 2006), a winter trapping program was arranged. Four Malaise traps were used in southeastern New South Wales, in Tallaganda National Park from the 15 June to 13 July 2006 and at Brown Mountain near Nimmitabel from 14 July to 11 August 2006. The results and field observations are reported here.

Numerous voucher specimens of *P. mcalpinei* have been deposited in the Australian National Insect Collection at CSIRO, Canberra.

Observations

At Tallaganda National Park two trapping sites were chosen, both along the North Black Range Fire Trail that runs north to south, approximately 9 km east of Hoskinstown. Both sites were in tall, wet sclerophyll forest growing amongst granite boulders and old fallen timber, with an understorey of *Pteridium esculentum* (G.Forst.) Cockayne (Hypolepidaceae), *Dianella tasmanica* Hook.f. (Hemerocallidaceae) and *Lomandra longifolia* Labill. (Xanthorrhoeaceae). Malaise trap #1, at the first site (35°25'07"S, 149°32'07"E), was at 1060 metres, alongside a thicket of *Acacia melanoxylon*



Figs 1-3. *Perissomma mc Alpinei*. (1) adult in alcohol (photograph by Chris Manchester, CSIRO); (2) wing showing distinctive colour pattern (photograph digitally enhanced by Geoff Thompson, Queensland Museum); (3) live adult (photograph by Chris Lambkin, Queensland Museum). Scale line (fig. 2) = 1 mm.

R.Br. (Fabaceae), with *Eucalyptus viminalis* Labill. and *E. melliodora* A.Cunn. ex Schauer (Myrtaceae) and *Banksia marginata* Cav. (Proteaceae) growing amongst some rocky scree. Nearby, on a steep area where no trees grew, trap #2 was placed at 1050 metres, beside a large fallen tree that would direct flying insects into the trap. The second site (35°25'12"S, 149°32'11"E) was higher up in the range, with both Malaise traps placed in an area with a high forest canopy, where the surrounding vegetation created passages through which flying insects were likely to travel. Trap #3 was placed near the top of a southward-sloping decline at 1150 metres, while trap #4 was further down the slope at 1120 metres. All four traps were inspected fortnightly. Twenty-one adults of *P. mcalpinei* were collected, with 16 found in trap #3, surrounded by dense *Dianella tasmanica*, and none in the more exposed trap #2.

On 13 July 2006, intensive sweep netting of *Dianella tasmanica* was done about the area of trap #3. Generally, *P. mcalpinei* were very scarce, except for one sunlit area that produced 36 adults (Fig. 3). Adults were seen resting on the edge of foliage, waving their forelegs in the air for about five seconds before flying a short distance to another leaf to repeat this leg waving. Their wings were opalescent and very obvious in the sunlight, making them visible from a distance above sunlit clumps of *Dianella*. Weakly-flying adults rose almost 30 cm above the clump of *Dianella* and flew in a zigzag pattern 5 to 10 cm wide, moving up and down in a column around 20 cm wide. They flew for five to eight seconds before descending back into the clump. Many aerial displays were concurrent and occasionally two columns would merge before again separating.

With the success of the Tallaganda trapping, it was decided to take the traps down to Brown Mountain, the type locality of *P. bellissima* Colless. Two traps were placed in forest gullies close to flowing creeks that supported large fern trees amongst eucalypts. The other two traps were placed in dry drainage gullies overgrown with cleared forest on either side (at 36°35'53"S, 149°24'39"E). After a month, one adult *P. mcalpinei* was taken in the drainage gully.

The protected aspect of the forest gully would appear to be ideal habitat for these weak-flying flies but none was trapped here, whereas one was captured in the exposed overgrown gully. At Tallaganda, a large number of *P. mcalpinei* were observed in a more exposed area near the top of a wet sclerophyll forest ridge. A similar observation was made by McAlpine (1987), when *P. mcalpinei* were recorded on a hill top in a dry sclerophyll forest on a well-drained rocky area of Mount York.

Acknowledgements

I wish to thank David Yeates (CSIRO Entomology, Canberra) and Christine Lambkin (Queensland Museum, Brisbane) for the use of their Malaise traps

and I acknowledge Christine Lambkin for her help in drafting this manuscript. I wish to thank Chris Manchester and Malcolm Fyfe (CSIRO Entomology) for providing collection information at short notice and also to Malcolm for data basing the specimens. I acknowledge Chris Manchester, Christine Lambkin and Geoff Thompson (Queensland Museum) for taking and enhancing the images. I thank the New South Wales National Parks and Wildlife Service for permission to collect insects at these sites and my daughter Kelly Ferguson for her keen interest and involvement in these observations.

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